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Out of the Classroom and Into the Community: Service Learning Reinforces Classroom Instruction

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ABSTRACT

Technology students successfully developed four complete sets of house plans including floor plans, framing plans, and elevations. Because Habitat relies on donations of doors, windows, and cabinets, detail drawings and schedules vary and were not included. Unskilled persons who volunteered time and labor for Habitat needed concise and unambiguous directions from supervisors. The students' drawings of floor and elevation plans provided these workers with a clear and graphic representation of the construction goals. As noted above, students were held to professional and technical accountability. This process was put in place to replicate real-world practices and to give students a sense of accomplishment that is achieved when they maintain their commitment to community-based responsibilities. As Hill (2004) notes, "***service learning*** projects not only provide technological artifacts that have real-world purpose and value, but they cultivate desirable attributes of citizenship and charity that are beneficial to society" (p. 11). The academic ***service learning*** project outlined in this article is an example of a community outreach project that can be successfully completed at the secondary or postsecondary level. This project was a win-win for the students, the community, and the university. The technology students reported a sense of accomplishment and fulfillment resulting from their contributions to families in the local community. Beyond this, Dundon (2000) found that ***service learning*** projects helped students answer the questions: "What do I do well? What life experiences have shaped me and made me who I am?" (p. 34). This partnership between the University and Habitat for Humanity created a successful academic ***service learning*** project that gave these technology students real-world experiences, enhanced classroom learning, and enhanced the technology students' personal and social maturation.

In a continuous effort to teach real-world concepts and skills, community outreach projects can be one of the main avenues of student success in the field of technology. Employers are interested in students who have real-world exposure as well as a depth and breadth of academic experiences. This article will provide the technology education teacher with a framework for developing an academic ***service learning*** project. The article will also illustrate a project that was performed in conjunction with Habitat for Humanity and address the relationship between ***service learning*** and Standards for Technology Literacy (STL) (ITEA, 2000/2002).

Service learning projects provide an opportunity to engage students, teachers, and community members in community service and civic participation. Godfrey and Grasso (2000) contend that ***service learning*** addresses process learning, continuous learning, and is an interactive phenomenon. Process learning reinforces a student's ability to problem-solve, addressing Standards 2 and 10 of STL (ITEA, 2000/2002). Continuous learning helps shape the student's attitude about lifelong learning. Finally, the interactive nature of ***service learning*** helps the student consider the effects of technology on society, addressing Standard 6 of STL (ITEA). The Habitat project herein is an example of Southeastern Louisiana University's Problem-Based ***Service Learning*** (PBSL). The goal of this university program is to help create stronger community-school relationships that are beneficial to each group while

to help create stronger community school relationships that are beneficial to each group while enhancing academic instruction.

Organizational Model for *Service Learning* Projects

Utilizing an organizational model for ***service learning*** projects requires the integration of real-world problems with the technology curriculum and the needs of the community. The educational value of ***service learning*** mandates that project objectives are aligned with appropriate learning objectives. Considerations must be given to how project goals dovetail with specific academic units of instruction. Suggestions given by Anderson and Sungur (1999, p. 133) and Stevens (1999, p. 30) are combined into an organizational model for academic ***service learning*** appropriate for technology education (see Figure 1).

After the appropriate organization has been located, and objectives identified, Stephens (p. 20) posits project selection criteria should based on the following:

* Providing opportunities for students to apply their skills.
* Strengthening students' problem-solving skills by allowing them to help select and define the project.
* Providing opportunities for students to develop habits of dependability and cooperation.
* Satisfying a real need as perceived by the faculty, students, and community.
* Having measurable outcomes.
* Benefiting students' self-worth.
* Fostering a broader understanding of community.

Finally, Stephens (1999) suggests "For some programs a more extensive orientation [training] is needed. This will include an introduction to the world of work ... details of the students' assignments ..." (p. 28). Reflection is also a key component of ***service learning*** projects. Again, Stephens noted "Reflection is the yeast that transforms service experiences into learning. It is the path to the development of critical thinking skills" (p. 31). Student reflection generally takes place in the form of journaling or group discussions. The primary purpose of reflection is to critically examine and determine the benefits of the educational experience. Students begin to make the connection between their work in the community and their future role in the working world.

The Habitat for Humanity Project

Habitat for Humanity is an international nonprofit organization founded in 1976 by Millard Fuller and his wife Linda. Since that time, Habitat has constructed more than 150,000 homes worldwide (Habitat, 2003). All of the homes that Habitat builds are completed with volunteer labor and donations of capital and materials. Working with Habitat provided an outstanding opportunity for technology students to develop new technical skills and to personally experience the rewards of volunteering time and effort to civic activities.

Because Habitat's work is accomplished through community level affiliations, it became an appropriate venue for the direct involvement of technology students. Students became part of an international effort to provide low-income families with affordable housing. When students working on this project first became involved with Habitat, builders in the community were working from a basic floor plan printed out on an 8 1/2" × 11" sheet of paper. As many as four different floor plans were being constructed from this initial design. There were no foundation plans, framing plans, or elevations to work from. The local Habitat Foundation needed complete sets of house plans that clearly illustrated and specified all of the details for the various designs that the local volunteers were currently building.

Project Objectives

Technology students who take architectural drafting courses in high school or at a university are often required to develop drawings according to local specifications and codes. Students are sometimes asked to revise existing plans or to design their own dream home. Unfortunately, these students seldom

get to experience the fruits of their labor by seeing the actual construction of one of their designs. One solution to this problem is to provide students with opportunities to assist in developing new or revised plans for builders in the local community. A direct benefit for the students becomes witnessing elements of their project come to fruition (see Figure 2).

Godfrey and Grasso (2000, p. 58) noted that ***service learning*** is utilized by a wide range of disciplines and consequently requires a specific set of educational objectives aligned to curricula requirements. Objectives for students involved in the Habitat project were as follows:

* Understand the philosophy of Habitat for Humanity.
* Develop an understanding of community service.
* Develop new skills for collaborating and communicating design ideas on CAD.
* Demonstrate problem-solving skills as well as skills in analyzing information.
* Work under the guidance of master builders from Habitat and technology education teachers.
* Demonstrate an understanding of professionalism required in the workplace.
* Create detailed CAD drawings for four residences that the local area Habitat builds (see Figures 3 & 4).

These objectives are aligned with the following STL standards (ITEA 2000/2002):

* Students will develop an understanding of the relationships of technology and the connections between technology and other fields of study.
* Students will develop an understanding of the cultural...effects of technology.
* Students will develop the abilities to apply the design process.
* Students will develop an understanding of and be able to...use construction technologies.

Project Organization

The students' involvement began with understanding the vision of Habitat for Humanity. Students researched the history and philosophy of the organization's founders in the library and on the Internet. Meetings were then set up with builders to discuss their particular needs and to develop a plan to coordinate activities in compliance with Habitat's vision. The teacher and students met with the building supervisors at work sites to preview construction details. Because Habitat usually builds more than one home at a time, students were able to view residential construction at various stages of completion. Talking with the builders about their specific needs and having the experience of visiting a construction site made the conceptual portion of residential design more concrete. This experience was an integral component of instruction that allowed students to benefit from working under the guidance of master builders. After the initial meeting with the construction supervisor for Habitat, the students began the detailed work of completing full sets of residential plans. The students were divided into teams, responsible for rendering drawings and overseeing other team members' work to check for accuracy and completeness.

Technology students were part of a formative assessment and accountability process. Students were required to establish and hold meetings with the technology education teacher to receive feedback, review their accomplishments, discuss concerns, and seek technical assistance. Submissions of work on a weekly basis and follow-up meetings were maintained throughout the project. When periodic drafts had been reviewed and approved by team members and their teacher, the work was submitted to the Habitat building supervisor for a formative evaluation. The Habitat supervisor worked with students to assure the quality of their work and provide technical instruction.

Instructional Strategies

To meet the project objectives, instructional strategies utilizing lectures, demonstrations, field experiences, group discussions, and mentoring activities were employed in the contextual environment of residential design and construction. Instructional practice was also realigned to facilitate the following:

* Monitoring: Developing an effective means of gathering regular feedback from community

* Monitoring: Developing an effective means of gathering regular feedback from community partners and students.

* Interdependence: Creating a diverse set of activities that facilitates community members co-teaching.

* Transformations of appraisals of outcomes: Developing joint outcomes that meet the needs of both the educational institution and the community partners.

* Affirmation: Developing an effective means for affirming the value of the partnership.

The above was adapted from "Campus-Community Partnerships: The Terms of Engagement" Bringle and Hatcher (2002, p.510-511).

Professionalism: Training

A significant component of this project focused on students' developing a sense of professionalism. Discussions were held with students throughout the project's duration on professionalism in the workplace. The following tenets and behaviors provided a framework for student discussions to assure that they approached all activities with integrity and professionalism.

* Altruism
- Offering to help a teammate through difficulties
- Providing contributions beyond the scope of the assignment
* Integrity
- Being able to admit to errors and shortcomings
- Not misusing resources (e.g., school computers and software)
* Caring and Compassion
- Valuing the skill levels of all team members
- Valuing the contributions of all team members
* Respect
- Respecting those individuals who are in need of community service
- Respecting the goals and philosophy of the parent organization (Habitat)
* Responsibility and Accountability
- Caring for oneself and presenting oneself in a professional manner
- Taking responsibility for one's appropriate share of teamwork
* Excellence and Scholarship
- Mastering the skills and technologies under study
- Taking initiative in organizing, participating, and collaborating in team activities
* Leadership
- Taking a leadership role when appropriate to working conditions
- Teaching and directing others when appropriate

The above was adapted from the Association of American Medical Colleges (2002, p.5).

Student Portfolios

Students developed and submitted portfolios of their work for evaluation. Electronic portfolios are learner-centered assessment tools that have been recognized since the early 1990s as authentic means of student evaluation (Barrett, 2000; Linn, & Gronlund, 2000; Huba, & Freed, 2000; Worthen, 1993). Technology students were required to construct electronic and hard-copy portfolios as part of the individual and team-generated deliverables. The students' weekly review required them to submit only the latest revisions of their work. Final portfolios contained all earlier artifacts. These portfolios were a component of formative assessment that utilizes pre-established benchmarks for purposes of evaluating and tracking student performance over time. Consequently, short-range goals were modified each week to reflect the students' strengths and weaknesses. Formative assessment provided technology students with an opportunity to capture evidence of their accomplishments and the added motivation to continue to improve their submissions. Most importantly, reviewing the portfolio with the technology education

to improve their submissions. Most importantly, reviewing the portfolio with the technology education teacher allowed the student to reflect on the experience of the activity. John Dewey (1938) noted that student learning results not only from the experience but also in reflecting on the experience. Hamilton (2003) found that "The reflection is intended to catalyze deeper learning, to capture the connection between disparate skills and information from diverse courses, and to move students into an awareness of meaning that transcends discipline-specific knowledge" (p.16). Final portfolios were submitted in two different styles: One reflected the individual's accomplishments, and the second illustrated the team's performance on the project. Slavin (1989) reported that for collaborative learning projects it is essential to have individual and team accountability. The students' collaboration with the Habitat representative and the technology education teacher resulted in professionally developed portfolios. Portfolios were organized artifacts indicative of a technology student's learning, experiences, and work-readiness qualifications that can be presented to potential employers. The portfolios also became an excellent measurement tool for the technology education teachers when self-evaluating instructional effectiveness. In addition, portfolios became technological artifacts for future groups of students working on similar projects. Finally, these portfolios also represented the type of documentation that would be required if students were to articulate credit from secondary schools to postsecondary institutions or between post-secondary institutions.

ADDED MATERIAL

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Figure 1 ***Service Learning*** Organizational Model

Figure 2

Figure 3 Habitat 4-Bedroom

Figure 4 Habitat 4-Bedroom Right Elevation

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